

GENERAL NOTES

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MUSINEON TENUIFOLIUM (APIACEAE): NEW HOST OF FOUR NEBRASKA PAPILIO (PAPILIONIDAE)

Additional key words: *Artemisia dracunculus*, *Papilio machaon*-complex, swallowtail.

The recorded larval host plants of four *Papilio* species, *P. zelicaon nitra* W. H. Edwards, *P. indra* Reakirt, *P. polyxenes asterius* Fabricius, and *P. machaon bairdii* (W. H. Edwards), encompass a variety of genera in three plant families, Asteraceae, Apiaceae, and Rutaceae. Here we report narrow-leaved musineon, *Musineon tenuifolium* Nutt. (Apiaceae), as a new larval host plant for these four swallowtails.

Musineon tenuifolium is endemic to the west-central Great Plains, ranging from the Black Hills of South Dakota and Wyoming, south through eastern Wyoming and the Nebraska panhandle (Barkley 1977). Farrar (1990) characterizes *M. tenuifolium* as a native perennial favoring dry, rocky outcrops, growing from a caudex atop a thickened taproot. It possesses stemless, dissected leaves rising from a root crown to form a compact tuft of foliage. Small, cream to bright yellow flowers form compound umbels, approximately 2.5 cm across, atop a leafless stalk normally less than 15 cm tall. In Nebraska, *M. tenuifolium* usually stays green the entire season except under severe drought conditions. It is an extremely local umbel, but often common in the appropriate habitat.

M. tenuifolium was first brought to our attention in 1983 while collecting in the canyons of northwestern Sioux County, Nebraska. A search of *M. tenuifolium* foliage yielded larvae of both *P. z. nitra* and *P. indra*. *M. tenuifolium* is believed to be the exclusive host plant for these swallowtails in Nebraska, and supports a second brood of *P. indra* in our area. We also have observed larvae of *P. z. nitra* and *P. indra* feeding on *M. tenuifolium* in the Black Hills of South Dakota.

On 20 June 1991, a collecting trip to Bull Canyon, Banner County, Nebraska resulted in about 40 swallowtail larvae collected on *M. tenuifolium*. Of these larvae, approximately one-half emerged as adults from mid-July through mid-August. Surprisingly, only three adults were *P. z. nitra*; others were *P. p. asterius*.

While collecting in southern Scotts Bluff County, Nebraska on 25 May 1992, five 5th instar swallowtails were discovered on *M. tenuifolium* by the first author and Nick D. Theis. The larvae were removed and fed cut *M. tenuifolium* until pupation. Starting 15 June 1992, pupae began to eclose. Emergent adults were *P. m. bairdii*, a species thought to have fed exclusively on silky wormwood, *Artemisia dracunculus* L. (Asteraceae), in Nebraska.

These observations raise some intriguing questions regarding possible range extensions and the use of alternative host plants by members of the *P. machaon*-complex. It is likely that continued efforts of naturalists and collectors within and outside the state will lead to insights concerning these and subsequent questions.

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TWO NEW SYNONYMIES IN NEARCTIC *EUCOSMA*
(TORTRICIDAE: OLETHREUTINAE)

Additional key words: *Eucosma wandana*, *E. uta*, *E. ustulatana*, Kentucky, genitalia.

In the course of identifying *Eucosma* specimens captured recently in Kentucky, we reached the conclusion that *E. wandana* Kearfott, *E. uta* Clarke, and *E. ustulatana* Blanchard & Knudson are one and the same morphospecies. Males captured at the same Kentucky locality on the same date match male holotypes of all three taxa. All specimens we examined that had been or could be assigned to these taxa have similar underlying forewing patterns varying in the proportion of dark brown to light orange brown. On average, males ($n = 12$) are darker brown than females ($n = 44$).

Eucosma wandana was described from one male by W. D. Kearfott in 1907, but we also have seen a female with a "type" label not mentioned in the original description; *E. uta* was described from two males and one female by J. F. G. Clarke in 1953; and *E. ustulatana* was described from two males by A. Blanchard and E. C. Knudson in 1983. None of these short type series reveals the full range of color variation we observed in longer series. Moreover, Clarke seems to have overlooked *E. wandana* when he described *E. uta*; for differentiation, he used *E. atomosana* (Walsingham), a western species (Heinrich 1923). In describing *E. ustulatana*, Blanchard and Knudson cited *E. wandana* (as *E. eumaea* Meyrick) for comparison, but the diagnostic differences cited by them—smoother, more evenly convex anterior valval margin in *E. ustulatana*—can be ascribed to individual variation. No differences are discernible among holotype genitalia of *E. wandana* (as *E. eumaea*) (Heinrich 1923), *E. uta* (Clarke 1953), or *E. ustulatana* (Blanchard & Knudson 1983).

We summarize as follows:

Eucosma wandana Kearfott
(Figs. 1-3)

Eucosma wandana Kearfott (1907) (holotype: male, Cincinnati, Ohio, 25 July [not August as in original description] 1904, A. F. Braun, in American Museum of Natural History [AMNH], New York, N.Y., wings illustrated in Fig. 1 here); Klots (1942).

E. eumaea E. Meyrick (1912); Heinrich (1923) (holotype genitalia photo-illustrated); Klots (1942) (invalid replacement name).

E. uta Clarke (1953) (holotype: male, Putnam Co., Illinois, 10 July 1939, M. O. Glenn, in National Museum of Natural History [NMNH], Washington, D.C.; male and female genitalia sketch-illustrated, wings of paratype photo-illustrated); Godfrey, et al. (1987) wing of female photo-illustrated. **New Synonymy.**

E. ustulatana Blanchard & Knudson (1983) (holotype: male, Brenham, Washington Co., Texas, 4 June 1979, E. C. Knudson, genitalia prep. WEM 36924, in NMNH, wings photo-illustrated, male genitalia of paratype photo-illustrated). **New Synonymy.**

Eucosma wandana is probably multivoltine. Capture dates range from 4 June to 15 September ($n = 53$). The known distribution is Kentucky, Ohio, Illinois, Missouri, Arkansas, Kansas, Georgia, Florida, and Texas. Forewing length of males ranges from 7.5 to 8.5 mm ($n = 12$); of females, 7.0 to 9.25 mm ($n = 44$). *Eucosma wandana* is one of at least 11 eastern species of *Eucosma* having ventral extensions of female papillae anales (Fig.